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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,131	09/06/2000	Hiroshi Yamaguchi	Q59329	9189

7590 06/02/2006

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ART UNIT	**PAPER NUMBER**
2621	

DATE MAILED: 06/02/2006

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/656,131
Filing Date: September 06, 2000
Appellant(s): YAMAGUCHI, HIROSHI

Ruthleen E. Uy (#51,361)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 3/13/06 appealing from the Office action mailed on 7/13/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

There are no related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,266,805	Edgar	11-1993
4,933,983	Hiramatsu et al.	6-1990
3,758,193	Tung	9-1973

(9) Grounds of Rejection

I. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

II. Claims 1-2, 4-7, 11, 13-15, 17-18, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Edgar (US 5,266,805).

As for claims 1, 13 and 18, Edgar teaches of a detecting device for detecting defect portions in an image represented by electronic information (Edgar: column 4, lines 30- 67), a deciding device for selecting a correction method from among a plurality of types of correction methods for correcting a defect portion, or for deciding a range of application of each of at least

two correction methods correcting a defect portion; a correction device for correcting defect portions in the electronic information by applying the correction method selected by the deciding device (Note: Edgar shows one way in which this can be done is by the intensity of the imperfections, one method is shown in column 6, lines 39-58 and another in column 6, lines 59-68).

As for claims 2 and 14, Edgar teaches of electronic information represents an image recorded on image recording material, and the detection device detects defect portions in the image from data obtained from irradiating the image recording material on which the image is recorded with non-visible light, and photo-electrically converting non-visible light after irradiation of the image therewith to produce said data (Note: In Edgar, infrared light is used to detect the defects, column 6, lines 3-17).

As for claim 15, Edgar teaches of deciding device selects the correction method or decides the application ranges using at least one characteristic of the defect portion selected from the group consisting of: a correlation of density changes in each component color in an area adjacent to the defect portion; density distribution in areas surrounding the defect portion of the image', an information as to whether the defect portion is present within a principal area of the image or not; and extent of overlap of the defect portion with a principal area of the image (Note: the pixels of the four wavelengths are each taken into account with the process disclosed in Edgar: column 8, lines 41-68; column 9, lines 1-53).

As for claim 4, Edgar teaches of deciding device selects the correction method or decides the application ranges based on at least one of an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion, and a correlation between a change in an amount

of transmitted or reflected non-visible light in an area adjacent to the defect portion when the non-visible light is irradiated onto the image recording material, and a change in an amount of transmitted or reflected visible light in an area adjacent to the defect portion when visible light is irradiated onto the image recording material (Edgar: column 12, lines 26-39).

As for claim 5, Edgar teaches of plurality of types of correction methods include an interpolation method in which information for correcting a defect portion obtained by interpolation from information in an area surrounding the defect portion (Edgar: column 12, lines 26-39), and a brightness adjustment method in which image information is corrected such that the brightness of a defect portion changes (Edgar: column 9, lines 13-33).

As for claims 6 and 7, Edgar teaches of a predetermined plurality of wavelength regions from among non-visible and visible light regions is irradiated onto the image recording material, then if the amount of non-visible transmitted light in the defect portion is less than the amount of non-visible transmitted light in an area surrounding the defect portion, and if the amount of transmitted light of at least one wavelength region from among the plurality of wavelength regions in the defect portion is greater than the amount of transmitted light in the area surrounding the defect portion, the deciding device selects as the correction method an interpolation method in which information for correcting a defect portion is obtained by interpolation from information in an area surrounding the defect portion (Edgar: column 12, lines 1-66).

As for claims 11, 17, and 20, Edgar teaches of a calculation device for calculating a brightness alteration amount for correcting a defect portion in the image based on an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when light is

irradiated onto the image recording material, and a difference in the refractive indexes of visible light and non-visible light in the image recording material; and a correction device for correcting electronic information representing the image such that the brightness of the defect portion of the image represented by the electronic information changes by an amount calculated by the calculation device (Edgar: column 6, lines 59-68; column 7, lines 1-9; column 9, lines 13-53).

As for claim 21, Edgar discloses wherein the plurality of types of correction methods comprises a vignetting method in which image information is corrected by reducing high frequency components of a spatial frequency of a defect portion and an area adjacent to the defect portion (Edgar: column 9, lines 53-67; column 10, lines 55-67; column 14, lines 10-45), as in the claim.

III. Claims 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiramatsu et al., (US 4,933,983 hereinafter referred to as "Hiramatsu").

As for claims 16, and 19, Hiramatsu teaches of a feature amount calculation device for use with electronic information representing an image having a defect portion, the feature amount calculation device being for calculating respective amounts of image features in a plurality of different directions from within defect portions; an individual correction value calculation device for obtaining interpolation correction values for correcting the defect portion from information through areas of the image in each of the plurality of directions (i.e. main scan direction and sub scan direction); a final correction value calculation device for obtaining, based on amounts of image features of each direction calculated by the feature amount calculation device, a final correction value from correction values calculated for each direction by the individual correction value calculation device; a correction device for correcting the defect

portion in the electronic information representing the image, using a final correction value calculated by the final correction value calculation device (Hiramatsu: column 23, lines 12-50; column 29, lines 60-68; column 30, lines 1-42).

IV. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

V. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edgar (US 5,266,805) in view of Tung (US 3,758,193).

As for claim 12, most of the limitations of the claim are contained in the above rejection of claim 11, however, Edgar does not specifically teach of calculating a high frequency ratio, But, it is considered well known to one of ordinary skill in the art at the time of the invention that this ratio could be used in order to see how much the light is being affected by defects and it could then be used in a calculation to change the intensity (Tung: column 1, lines 55-63 and in claim 1), Official Notice.

VI. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim 1.

The prior art fails to disclose "...wherein the deciding device selects the correction method or decides the application ranges using at least one characteristic of the defect portion selected from the group consisting of: a correlation of density changes in each component color

in an area adjacent to the defect portion; density distribution in areas surrounding the defect portion of the image; an information as to whether the defect portion is present within a principal area of the image or not; and extent of overlap of the defect portion with a principal area of the image..." as in dependent claim 3 which is a feature that is not anticipated nor obvious over the art of record. If amended as indicated above, the claim would be allowable.

VII. Claims 8-10 and 22-24 are allowed.

The prior art fails to disclose determining "...a final correction value calculation device for obtaining, based on amounts of image features of each direction calculated by the feature amount calculation device, a final correction value from correction values calculated for each direction by the individual correction value calculation device; and a correction device for correcting the defect portion in the electronic information representing the image, using a final correction value calculated by the final correction value calculation device..." which is a feature of independent claim 8. Dependent claims 9-10 and 22-24 are allowed for the reasons concerning the independent claim.

(10) Response to Argument

I Appellant's arguments filed on 3/13/06 with respect to claims have been fully considered but they are not persuasive.

II. The Appellants present three arguments contending the Examiner's rejection of the group I claims of 1, 13, and 18 under 35 U.S.C. 102(b) as being anticipated by Edgar (US 5,266,805), one argument contending the Examiner's rejection of the group II claims of 11, 17, and 20 under 35 U.S.C. 102(b) as being anticipated by Edgar (US 5,266,805), one argument contending

Examiner's rejection of the group III claim of 21 under 35 U.S.C. 102(b) as being anticipated by Edgar (US 5,266,805), two arguments contending the Examiner's rejection of claims 16 and 19 under 35 U.S.C. 102(b) as being anticipated by Hiramatsu et al., (US 4,933,983 hereinafter referred to as "Hiramatsu"), and two arguments contending the Examiner's rejection of claim 12 under 35 U.S.C. 103(a) as being unpatentable over Edgar (US 5,266,805) in view of Tung (US 3,758,193). However, after a careful consideration of the nine total arguments, the Examiner must respectfully disagree for the reasons that follow, and submit to the Board that the rejections are proper and should be maintained.

After summarizing the applied reference (Brief of 3/13/06: page 13, lines 1-15) the Appellant argues that the primary Edgar reference fails to disclose "...a deciding device..." as in the claims (Brief of 3/13/06: page 13, lines 17-21; page 14, lines 1-14), as in the recited claims. The Examiner respectfully disagrees. It is noted that the interpolation and divide function blocks produce results based on the execution of the function of figure 4, where it is duly noted that a decision tree is used to arrive at the appropriate correction method (Edgar: column 9, lines 10-20). It is submitted that since these blocks are responsible for correction results based on the execution of the disclosed decision tree (Edgar: column 9, lines 25-35), Edgar sufficiently discloses the use of "...a deciding device..." as currently recited in the claims. Accordingly, the Examiner maintains that the limitation is met.

Secondly, the Appellant argues that Edgar fails to disclose "deciding a range of application for each of at least two correction methods..." as in the claims (Brief of 3/13/06: page 14, lines 15-21; page 15, lines 1-19). The Examiner respectfully disagrees. Based on the rather broad scope on the claims, Edgar meets this limitation in three ways. Firstly, the Examiner

notes that since red, green, and blue visible signals have differing transfer characteristics in imaging (Edgar: column 12, lines 40-65; column 13, lines 10-30), a fill-in algorithm is ***used for each of the respective*** red, green, and blue values. The Examiner asserts that this means a different fill-in algorithm is used for each of the colors in a one fill-in algorithm to one color correspondence, and not a one fill-in algorithm to three-color correspondence as the Appellant seems to believe. Each of the fill-in algorithms would be different since they would be tailored towards correcting color specific imperfection distribution in each image. That is the first way in at least two correction methods used in Edgar reads on the limitation. Assuming that the Appellant's position is tenable and that the same fill-in algorithm is used for the three visible color images, the Examiner notes that correction of the infrared values (i.e. a non-visible wavelength of light) would require a its own fill-in algorithm different from the visible three color fill-in algorithm because of the three colors are corrected using linear and cube root considerations (Edgar: column 12, lines 5-24) while the infrared values are addressed with a linear and logarithmic treatment (Edgar: column 13, lines 8-15). So mathematically, the foundation in Edgar is established using two different methods based on whether the signal is visible or infrared. Lastly, the Examiner notes that the correction methods disclosed are fill-in algorithms and a division operation. Both methods are used to adjust the pixel values for correction implementation, and Edgar discloses choosing between one and the other on a pixel-by-pixel basis (Edgar: column 12, lines 30-35). The pixel-by-pixel application of a fill-in algorithm or a dividing function also reads on the "...at least two correction methods..." as in the claims. Accordingly, Edgar meets this poorly claimed limitation in at least three ways.

Thirdly, the Appellant argue that "...the intensity of imperfection..." does not teach a correction range (Brief of 3/13/06: page 15, lines 19-22; page 16, lines 1-14). The Examiner respectfully disagrees. The imperfections are mapped and evaluated according intensities that establish the degree of imperfections in the image. For each mapped image there is going to a most intense imperfection (i.e. the strongest or greatest in value) and a least intense imperfection (i.e. the weakest or smallest in value). A selected fill-in algorithm would use these two values to establish a correction range such that both values can be addressed, and thus this is how an intensity of imperfections relates to the "range of correction" as in the claims. Accordingly, the Examiner maintains that this limitation is met.

With regards to the group II claims, the Appellant argues that Edgar fails to disclose "...a calculation device for calculating a brightness alteration amount for correcting a defect portion..." as in the claims (Brief of 3/13/06: page 16, lines 14-20; page 17, lines 1-22; page 18, lines 1-6). The Examiner must respectfully disagree, and must further question the grasp of logic and technical understanding that underscores this specious assertion. Edgar discloses using a fill-in algorithm to address the imperfections wherein the algorithm would arrive at an alteration amount for correcting the defect portion (Edgar: column 12, lines 25-40). Edgar further goes on to establish that darkness is a major feature that is associated with each imperfection (Edgar: column 11, lines 20-25). Accordingly, the logical way to correct for unwanted darkness in an image is to offset it by using a brightness alteration amount. This is how Edgar addresses this limitation.

With regards to the group III claim, the Appellant argues that Edgar fails to disclose "...reducing high frequency components of spatial frequency..." as in the claim (Brief of

3/13/06: page 18, lines 7-13). The Examiner respectfully disagrees. It is noted that Edgar discloses of a software boost to manipulate the high spatial frequencies for renormalization to offset the removal of said high frequencies (i.e. "softening") at the CCD sensor level (Edgar: column 10, lines 63-67). Edgar recognizes the advantage of high frequency removal, but is cognizant of too much image degradation and thus has a correcting factor implemented in software. Accordingly, the Examiner asserts that this limitation is met.

Furthermore, the Appellant argues that claims 16 and 19 recite similar features as in allowed claim 8, and should also be allowed (Brief of 3/13/06: page 18, lines 7-12). The Examiner flatly disagrees. Claim 8 specifically sets of the calculation of the final correction value using a "...final correction value calculation device for obtaining, based on amounts of image features of each direction calculated by the feature amount calculation device, a final correction value from correction values calculated for each direction by the individual correction value calculation device; and a correction device for correcting the defect portion in the electronic information representing the image, using a final correction value calculated by the final correction value calculation device..." while claims 16 and 19 recite broader "final correction value..." limitations that are met by the reference.

Additionally, the Appellant argues that Hiramatsu disclose "...calculating image feature amounts for defect portions...a plurality of different directions running from within each defect portion..." (Brief of 3/13/06: page 18, lines 13-19; page 19, lines 1-22; page 20, lines 1-2). However, the Examiner must respectfully disagree. In the embodiment disclosed, Hiramatsu discloses scanning in a mainline scanning direction which inherently includes left to right and right to left scanning (i.e. two directions) and uses the correction method for a short defect and a

long defect therein (Hiramatsu: column 29, lines 60-67; column 30, lines 1-42). Additionally, Hiramatsu further has sub-scanning processing which allows for ***directions perpendicular*** to the main line axis to allow for a two dimensional scan for correcting defects (Hiramatsu: column 32, lines 5-10). It is noted that the Appellant has already established that both the main scan and a sub-scan are used for correction of appropriate defects such as the proposed long defects (Brief of 3/13/06: page 19, lines 8-11). Accordingly, the Examiner asserts that the limitation is met.

After summarizing the incorporation of the Tung reference (Brief of 3/13/06: page 20, lines 7-11) with Edgar and providing a brief synopsis of the general teachings of Tung (Brief of 3/13/06: page 20, lines 12-19), the Appellant argues that Tung fails to discloses "...extracting high frequencies..." where "...a feature amount is calculated based on the type of image recording material..." (Brief of 3/13/06: page 21, lines 1-8). The Examiner respectfully disagrees. In response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Since Edgar has already shown to address this feature, it is not necessary for the secondary Tung reference to do so. Edgar addresses "...extracting high frequency components of spatial frequency..." as in the claim. It is noted that Edgar discloses of a software boost to manipulate the high spatial frequencies for renormalization to offset the removal of said high frequencies (i.e. "softening") at the CCD sensor level (Edgar: column 10, lines 63-67). Edgar recognizes the advantage of high frequency removal, but is cognizant of too much image degradation and thus has a correcting factor implemented in software. Also it is further noted that Edgar further notes that there are a

plurality of recording mediums which intrinsic would establish differing feature amount representations and one of ordinary skill in the art would use this teaching in the calculation step (Edgar: column 14, lines 25-67; column 15, lines 1-45). Accordingly, the Examiner asserts that these limitations are met.

In response to Appellant's argument that there is no suggestion to combine the references (Brief of 3/13/06: page 21, lines 9-21; page 22, lines 1-12), the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the alleged deficiencies of Tung are met by Edgar, and that Tung's teaching of using the ratio would be a part of the softening process. As to the Appellant's desperate assertion that the software boost of high frequencies would not require "extraction" as in the claims (Brief of 3/13/06: page 22, lines 6-12) the Examiner notes manipulating the high frequencies for boosting would require an inputting function of the associated frequency coefficients of the high frequencies which is extraction. Accordingly, that there is a suggestion to combine the references most of which is derived from the primary Edgar reference.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Conclusion

Respectfully submitted,

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May 30, 2006
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